

REMARKS

Reconsideration and further examination of this application is hereby requested. Claims 30-68 are currently pending in the application. Claims 1-29 have been canceled. Claims 67-74 are newly added.

A. The Interview

Applicant appreciates the courtesy extended by Examiner Chawan and SPE Mehta in the personal interview of June 29, 2004. Discussion focused on identifying distinctions between the present invention and the prior art and determining what claim language would be mutually acceptable to define those distinctions clearly.

During the interview an agreement was reached that the claims would define over the prior art if they were limited to i) a fixed optical system, ii) a single sensor, and iii) a ball grid array (BGA), and if the application were terminally disclaimed with respect to two co-pending applications (nos. 09/844,232 and 09/844,626) and three related patents (US 6064756, US 6064757, and US 6072898).

B. The Terminal Disclaimer

Although no issue of double patenting had been previously raised in this application, the topic was discussed during the interview. In order to eliminate any possible question of double

patenting issues arising from the family of related applications and issued patents, it was agreed that submission of a terminal disclaimer would be appropriate. Thus, submitted herewith is a terminal disclaimer as agreed.

C. The Obviousness Rejections

Claims 33-37 and 50-54 have been rejected under 35 U.S.C. § 103(a) as being obvious over *Toh* '040 (US 6141040) in view of *Toh* '055 (US 6055055). Claims 38-49 and 55-66 have been rejected under 35 U.S.C. § 103(a) as being obvious over *Toh* '040 in view of *Toh* '055, and further in view of *Kaplan* (US 6096567). These rejections are respectfully traversed based on the following arguments.

In order for a patent claim to be obvious, the prior art must teach or fairly suggest each and every limitation of that claim. That is because the claim must be considered as a whole.

Independent claim 33 (as amended) recites a method for
three dimensional inspection of a lead on a ball
grid array (BGA) device
at lines 1-2. Independent method claims 30 (refer to lines 1-2)
and 50 (refer to lines 1-2) each recite a similar limitation.

Independent claim 33 (as amended) recites that the method is practiced using "a single camera." See claim 33 at line 8.
Independent method claims 30 (refer to line 6) and 50 (refer to

line 8) each recite a similar limitation.

Independent claim 33 recites that the method is practiced using "fixed optical elements." See claim 33 at line 5.

Independent method claims 30 (refer to line 4) and 50 (refer to line 5) each recite a similar limitation.

As agreed during the interview, the prior art of record does not teach or suggest this combination of limitations.

Accordingly, it is respectfully submitted that the prior art of record do not support a *prima facie* case of obviousness with respect to claims 30-66.

D. The New Claims

New dependent claims 67 and 68 are directed toward more clearly defining one aspect of the invention in the situation where more than one light source is used to illuminate the ball grid array. As is consistent with the disclosure of the prior art publication US 5245671 to Kobayashi, Applicant claims the use of plural light sources that are spectrally diverse from one another.

New dependent claims 69 through 74 are directed toward more clearly defining one aspect of the invention in that the lead of the BGA being inspected is limited variously as being a contact, a pin, bump contact, ball contact, pad, or pedestal. To aid in the understanding of the meanings of these terms in the context

of ball grid array lead inspection, Applicant refers to definitions provided in the glossary section of the textbook *Ball Grid Array Technology*, edited by John H. Lau. Selected pages of this glossary are submitted herewith and are listed on an accompanying form PTO-1449. This publication existed on a date prior to the date of application herein and would have been known to those skilled in the art.

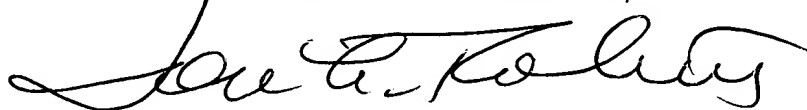
E. Closing

For the above reasons, Applicant respectfully submits that the application is in condition for allowance with claims 30-66. If there remain any issues that may be disposed of via a telephonic interview, the Examiner is kindly invited to contact the undersigned at the local exchange given below.

The Director of the U.S. Patent & Trademark Office is authorized to charge any necessary fees, and conversely, deposit any credit balance, to Deposit Account No. 18-1579.

Respectfully submitted,

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